

TABLE 2, groups the mites, beetles and flies, which have been held to be especially significant as time-indicators, and shows that the same species have been found after widely varying periods of interment. This is in direct contrast with the "principle" hitherto deduced, from observations on exposed cadavers, "that the products formed at different epochs in the progress of decomposition attract certain forms and repel others." A principle which Mégnin reiterates in a recent "Note sur une collection d'Insectes des cadavres interessants a connaitre au point de vue Medico-legal, offerte au Museum."

NOTES ON CERTAIN SOUTH AMERICAN COCHLIDIIDÆ AND ALLIED FAMILIES.

BY HARRISON G. DYAR.

At my request Mr. W. Schaus kindly brought me a number of moths from his collection for examination. Many of them are his types of species recently described and the rest have been carefully determined by him. The following notes are based on this material. It includes the groups closely allied to the Cochlidiidæ as well as that family itself, and one species of Ptilodontidæ, which was improperly described as a Cochlidian.

Family DALCERIDÆ.

Synopsis of Genera.

- Fore wings without accessory cell ; antennæ with prominent scale tuft at tip.
- Vein 6 arising above discal vein ; vein II from cell.....**Dalcera**
- Vein 6 arising below discal vein ; vein II stalked with 9 and 10....**Dalcerina**
- Fore wings with accessory cell ; antennæ without scale tuft.
- Veins 9 and 10 long stalked, but distinct**Acraga**
- Veins 9 and 10 coincident, 9 absent or invisible.
- Hind wings ovate, rounded.....**Dalcerides**
- Hind wings trigonate, inner margins long.....**Epípinconia**

Genus **Dalcera** H.-S.

1855—*Dalcera* HERRICH-SCHÄFFER, Ausser. Schmett. I. 7.

Type, *abrasa* H.-S.: also *fumata* Schaus, both before me. Möschler has given the generic characters. Others species listed are *obscura* Schs., *alba* Druce, *laxata* Druce, *ampla* Druce and *leberna* Druce, but I have not examined them.

Genus **Dalcerina**, nov.

Antennæ short, bipectinate, a tuft of scales at tip above; head prominent, eyes large; palpi porrect, slender, exceeding the front by half their length, not reaching vertex; third joint minute. Legs slender, hind tibiæ with end spurs only. Wings full, rounded; fore wing costa straight, rounded at apex; vein 1, furcate at base, without branch; 1 c present; 2 at middle of cell; 4 and 5 short stalked; cell closed by the short, wide angled furcation of discal vein; 6 midway between 5 and discal vein; 7 and 8 long stalked below apex of cell; 9 and 10 very long stalked as in *Dalcerina*, but 11 also stalked with 9 and 10 for some distance; 12 from base; retinaculum a long fold. Hind wings with three internal veins; vein 2 from the middle of cell; 3 and 4 arising close together; 5 from the lower part of cross vein; discal vein as on fore wing; 6 and 7 very remote, running parallel; 8 very close to 7 to end of cell, but free or with a trace only of a cross bar toward base where the vein is rounded toward costa. Frenulum long.

Type *tijucana* Schaus (Proc. Zool. Soc. Lond., 1892, 322). Mr. Schaus' type is before me, and looks, superficially, like a variety of *Dalcerina fumata*.

Genus **Acraga** Walk.

1855—*Acraga* WALKER, Cat. Brit. Mus. Lep. Het. IV, 807.

1882—*Pinconia* MOORE, Proc. Lit. Phil. Soc. Liverp. XXXVI, 364.

Venation as in *Dalcerina* (*vide* Möschler, Verh. Zool. Bot. Ges. Wien, XXVII, 673), but accessory cell present; veins 7-8 and 9-10 on stalks from accessory cell; 11 from the top of accessory cell.

Type *ciliata* Walker; also *moorei* Dyar (|| *ochracea* Moore), *ochracea* Walk. and *coa* Schaus. Also *melinda* Druce, unknown to me. I am indebted to Sir G. F. Hampson for information about Walker's type in the British Museum.

Genus **Dalcerides** N. & D.

1893—*Dalcerides* NEUMEYER and DYAR, Can. Ent. XXV, 121.

Close to *Acraga*, but the stalk of veins 9 and 10 reaches tip of wing.

Type *ingenita* Hy. Edw.; also *mesoa* Druce, the latter from Mr. Schaus' collection.

Genus **Epipinconia**, nov.

Antennæ short, bipectinate; eyes large; palpi slender, porrect, reaching half their length beyond the front; legs slender, hind tibiæ without spurs. Fore wing triangular, costa straight; vein 10 shortly stalked on the stalk of 7 and 8, 9 coincident (absent), 11 at base of accessory cell, all as in *Dalcerides*. Hind wings trigonate; inner margin long, anal angle sharply rounded, as also apex, the outer margin nearly straight; veins 2 to 5, somewhat equally spaced, 3 and 4 nearest; 6 above the end of discal vein, remote from and parallel to 7; 8 close to subcostal to end of cell, then divergent. Thinly scaled, bronzy, glistening species.

Type *flava* Walker (Cat. Brit. Mus., V, 1107); also *citrina* Schaus are before me.

Family MEGALOPYGIDÆ.

Genus *Aidos* Hübner.

1818—*Aidos* HÜBNER, Verz. Bek. Schmett. 191.

1895—*Brachycodion* DYAR, Can. Ent. XXVII, 244.

This has the venation of *amanda*, but veins 8 and 9 form a rounded rather than an angular furcation and 10 and 11 are very shortly stalked together. On hind wings veins 3 and 4 are shortly stalked; 6 and 7 separate and parallel; 8 free to base.

Type *amanda* Stoll; also *yamouna* Dogn. (*Euclea yamouna* Dognin, Le Nat., XIII, 126) from Mr. Schaus' collection.

Genus *Brachycodilla*, nov.

Antennæ lengthily pectinated on basal half, terminal half simple (serrate), the regions sharply marked; head sunken, palpi short, porrect, just reaching frontal tuft. Robust, vestiture suberect; legs rather long, posterior tibiæ with terminal spurs only. Venation essentially as in *Aidos* (*vide* Can. Ent., XXVII, 244), but vein 8 of hind wings is joined to subcostal by a strong bar at the end of the cell.

Type *castrensis* Schaus (Journ. N. Y. Ent. Soc., IV, 56); also *B. carmen* Schaus (*Talina carmen* Sch.) and *B. admirabilis* Schaus (*Perola admirabilis* Sch.) are before me, the latter retained in my collection by the kindness of Mr. Schaus.

Genus *Cyclara* Schaus.

1896—*Cyclara* SCHAUS, Journ. N. Y. Ent. Soc. IV, 57.

Besides the characters given by Mr. Schaus, vein 1 of fore wings has a long branch on the lower side (characteristic of the Megalopygidae); vein 6 arises above the concavity of the cell; cell broad; stalk of veins 7 and 8 drooping from that bearing 9; hind wings with veins 6 and 7 remote and parallel; 8 touching the cell except at base and extreme apex. Antennæ much shorter than half of fore wing, but not disproportionately short as the body is slender, pectinated to the tip; eyes large; palpi very short, almost rudimentary, not reaching the front; legs slender, rather long, hind tibiæ without spurs. A fragile insect, with proportionately large rounded wings.

Type *ovata* Schaus. Mr. Schaus' type is before me.

Family COCHLIDIIDÆ.

A. Male antennæ bipectinate on basal portion, the terminal half simple.

a. Discal vein long forked, the limbs forming an angle of less than 90°.

Genus *Sibine* H. -S.

1855—*Sibine* HERRICH-SCHAEFFER, Ausser. Schmett. I, 7.

1855—||*Nyssia* WALKER, Cat. Brit. Mus. V, 1132.

1860—*Empretia* CLEMENS, Proc. Acad. Nat. Sci. Phil. XII, 158.

1866—*Eupalia* WALKER, Cat. Brit. Mus. XXXV, 1927.

1878—*Streblota* BERG, Ann. Soc. Argent. V, 177.

1878—*Neomiresa* BUTLER, Trans. Ent. Soc. Lond. 74.

Type *nesea* Stoll. Mr. Schaus has loaned me specimens labelled *modesta* Cr., *plora* Schaus, *extensa* Schaus, and *trimacula* Stoll. I should regard the first three as the same species in most genera, but here the larvæ should be known for certainty.

Genus *Episibine*, nov.

Male antennæ bipectinated on basal third, the tip simple; palpi not reaching beyond the frontal hairs; fore wings with costa straight, inner margin sinuate, veins 2, and 3 separate, 8 and 9 stalked, 11 straight; fork of discal vein long and closed by a cross-vein; hind wings triangular, veins 6 and 7 separate at base, but divergent; 8 anastomosing at base; hind tibiæ without perceptible spurs.

Type *auromacula* Schaus (Journ. N. Y. Ent. Soc., IV, 56). Mr. Schaus' type is before me. This is a specialization of the ordinary *Sibine* form, the hind wings shaped as in the male of *Phobetron*.

Genus *Euclea* Hübner.

1822—*Euclea* HÜBNER, Verz. Bek. Schmett. 149.

1854—*Neera* HERRICH-SCHÄFFER, Samml. Ausser. Schmett. I, fig. 176.

1859—*Parasa* MOORE, Cat. Lep. E. I. Co. 413.

1860—*Nochelia* CLEMENS, Proc. Acad. Nat. Sci. Phil. XII, 159.

1864—*Callochloa* PACKARD, Proc. Ent. Soc. Phil. III, 339.

Type *cippus* Cramer.

♂ 1. Fore wings with vein 10 from end of cell (*Parasa*).

E. imitata Druce ♂, kindly added to my collection by Mr. Schaus.

E. cebrenis Sch. ♂ ♀, (♀ *Trabala cebrenis*). The female has been described by Mr. Schaus and figured by H. Druce (Biol. Cent.-Am., Lep. Het., II, pl. 87, fig. 11). The male associated with it is *E. lysia* Druce (Biol. Cent.-Am., II, 439) without any green on the fore wings. Mr. Schaus stated to me that he had a reason for this unexpected association, but he could not then recall what it was.

E. minima Schaus.

♂, Identical with *chloris* H.-S., except that the green band is of about half the width and does not touch the base of the wing. The moth is a little smaller than is usual in *chloris*.

E. viridogrisea, sp. nov.

Vertex of head and thorax above bright green; abdomen, thorax below and legs dark slate gray; wings uniformly dark slate gray, the veins not lined; on fore-

wings a rather narrow bright green band crosses the wing at about the middle and runs along internal margin to base; it is edged on both sides narrowly with light red brown; width of band about one-fourth the length of wing, a little narrower centrally from the brown outer border becoming broader at that point; the terminal space is slightly grizzled by pale scales. Expanse, 32 mm.

Type, one female in the collection of Mr. Schaus, who says that this is the "*chloris*" of the *Biologia Centrali-Americana*.

♂ 2. Fore wing with vein 10 stalked (*Euclea*).

E. diversa Druce. (*Semyra diversa* D.)

The figure in the *Biologia* is poor. The silvery line near internal margin should be a slender zigzag, produced a little along vein 2 and narrowly along vein 1 to base. The ordinary green of the genus is here replaced by dark brown. The pretty species seems to suggest some affinity with *Monoleuca* in markings.

E. copac Schaus. (*Neomiresa copac* Sch.)

A pretty dark gray species, with ovate, rounded wings.

Genus **Metraga** Walk.

1855—*Metraga* WALKER, Cat. Brit. Mus. V, 1129.

Type *perplexa* Walk. This species is before me. The genus seems a good one, close to *Euclea*, but differing in the large palpi, which reach nearly to the vertex of head, and in the convex costa; vein 11 is distinctly curved toward vein 12 at base; the discal vein is long forked and the cell closed by a cross-vein.

Genus **Miresa** Walk.

1855—*Miresa* WALKER, Cat. Brit. Mus. V, 1123.

Type *albipuncta* H.-S. In this genus the discal vein is long-forked, the limbs connected by a cross-vein outwardly; but often the upper limb is weak, so that the cross-vein practically replaces it, and the deceptive appearance of Hampson's figure is produced (*Moths of India*, I, 386).

M. argentea Druce. (*Eupalia argentea* D.)

The upper limb of the discal fork is quite strong and distinct; the palpi are a little longer than normal, just exceeding the front, and the pectinations of antennæ are not sharply marked off from the simple portion, the serrations running to apex. This is a generalized species in all these characters, possibly separable generically from *Miresa* (it would fall in *Asteria* Feld).

M. argentata Walk. (*Nyssia argentata* Walk.)

A true *Miresa*, close to the Indian species *bracteata* Butl., *argentifera* Walk., and *nivaha* Moore. The upper limb of discal fork is nearly absent, just traceable as a slight fold.

Genus **Idonauton** *Swinhoe*.

1892—*Idonauton* HAMPSON, Moths of India, I, 391.

Type *apicale* Walker.

I. straminea *Schaus*. (*Semyra straminea* Sch.)

This may be referred here provisionally. I have no male, hence do not like to propose a new genus. The palpi agree with *Idonauton*; head sunken, front not tufted; hind legs with terminal spurs only; venation agreeing with Hampson's figure, vein 10 from end of cell, but discal vein forked and closed by a cross vein.

b. Discal vein short-forked, the limbs forming an angle of 90° or more.

Genus **Talima** *Walk*.

1855—*Talima* WALKER, Cat. Brit. Mus. V, 1120.

Type *postica* Walker. The type species is before me. Venation of *Parasa*, except for the short forked discal vein, of which the two limbs close the cell, widely divergent, looking like a single vein meeting the end of cell. Vein 11 slightly curved at base. The palpi are upturned nearly to vertex; hind tibiæ with end spurs only. A thinly scaled, simply marked form, more generalized than the preceding.

Genus **Protalima**, nov.

Closely allied to *Talima*, but the palpi are short, not exceeding the frontal tuft, and the inner margin of hind wings is rounded, less long drawn out than in *Talima*. This would fall in *Miresa*, except for the structure of the discal vein. The superficial appearance, however, is like *Talima*, and is here really the best guide to affinity. Type *sulla* *Schaus* (*Nyssia sulla* Sch., Proc. Zool. Soc. Lond., 1892, 324).

B. Male antennæ bipectinated to the tip; fork and discal vein short and open.

a. Palpi long, reaching near or above vertex.

* Veins 2 and 3 of fore wings separate.

Genus **Vipsania** *Druce*.

1887—*Vipsania* DRUCE, Biol. Cent.-Am. Lep. Het. I, 217.

Palpi as in *Hyphorma*; fore wings with veins 7-9 stalked; fork of discal vein short and open, but a peculiar deceptive fold lies from the middle of the vein to origin of vein 6; hind wing like *Hyphorma*, but discal vein not forked; veins 6 and 7 from a point. Hind legs broken; but I learn from Sir G. F. Hampson that Druce's

type has two pair of spurs. The male is needed to place this genus finally; compare section C.

Type *anticlea* Druce ♀. Only the female is known and Mr. Schaus' specimen is one of this sex. Consequently the male antennæ are unknown.

Genus *Semyra* Walker.

1855—*Semyra* WALKER, Cat. Brit. Mus. V, 1130.

1878—*Eulimacodes* MÖSCHLER, Verh. Zool.-Bot. Ges. XXVII, 672.

Type *coarctata* Walk. The type species is before me; also Mr. Schaus' type specimen of *Eulimacodes möschleri*, which is simply the female of *coarctata* Walk. *S. distincta* Möschl., with the same structure and pattern, but larger and *S. bella* H.-S. are also before me. *S. cardia* Schaus begins to depart a little from the generic type. The palpi are a little shorter, not quite attaining the vertex, about as in *Prosternidia* Saalm., with which this species might be confounded in a synoptic table, though the markings are as in *Semyra*.

Genus *Prosternidia* Saalm.

1884—*Prosternidia* SAALMÜLLER, Lep. Madagascar, I, 208.

Type *metallica* Saalm. I have not seen this type, but from the characters given, place in the genus provisionally *P. elæa* Druce (*Perola elæa* D.), which is before me.

* * Veins 2 and 3 of fore wings stalked.

Genus *Amydona* Walk.

1855—*Amydona* WALKER, Cat. Brit. Mus. V, 1110.

Type *subpunctata* Walk. Mr. Schaus has kindly given me *Perola dora* Druce, which he thinks is the same as *subpunctata* Walk. The forks of discal vein form a right angle, or a trifle less; open. Congeneric are *A. sucia* Schaus (*Perola sucia* Sch.) and *A. platona* Schaus.

Amydona sericea Schaus.

This does not belong here, but I cannot place it, as the hind legs are gone. It is a curiously contradictory form, the male antennæ being distinctly pectinated to the tip, though decreasing rapidly on terminal half, while the fork of discal vein is long and closed by a cross-vein. The palpi are upturned above vertex, third joint long and slender; head rather prominent. Venation normal, vein 1 with many small veinlets toward the margin, but no distinct branch; veins 2 and 3 widely separate, 7 to 9 stalked, 11 oblique; hind wings with

6 and 7 from a point, 8 anastomosing near base. Mr. Schaus' type is before me. This doubtless represents a new genus.

b. Palpi moderate, reaching beyond frontal tuft.

* Veins 2 and 3 of fore wings separate.

Genus *Natada* Walk.

1855—*Natada* WALKER, Cat. Brit. Mus. V, 1108.

Type *rufescens* Walk. *Perola daona* Druce is before me. It belongs to this genus and seems specifically identical with *N. nasoni* of the United States.

Genus *Sisyrosea* Grote.

1876—*Sisyrosea* GROTE, Can. Ent. VIII, 112.

Type *textula* H.-S. *Amydona lucens* Walk. is before me. The legs are broken, but the other characters agree exactly. *Semyra diana* Druce is similarly mutilated, but otherwise falls here.

Genus *Thosea* Walk.

1855—*Thosea* WALKER, Cat. Brit. Mus. V, 1068.

Type *unifascia* Walk. *T. fusca* Druce is before me (*Trabala fusca* D.) and falls here, agreeing with the characters given in Hampson's "Moths of India."

** Veins 2 and 3 of fore wings stalked.

Genus *Epiperola*, nov.

Male antennæ bipectinated to the tip; palpi upturned, slightly exceeding the front, third joint small but distinct; fore wings with costa straight, veins 2 and 3 stalked, 7 to 9 stalked, 11 straight; fork of discal vein short and open; hind wings with veins 6 and 7 from a point, 8 anastomosing near base; hind tibiæ with terminal spurs.

Type *drucei* Schaus. (Proc. Zool. Soc. Lond., 1892, 323.)

This differs from *Perola* in lacking the middle spurs of hind tibiæ and in length of palpi.

c. Palpi short, not exceeding frontal tuft.

* Veins 2 and 3 of fore wings stalked.

Genus *Perola* Walk.

1855—*Perola* WALKER, Cat. Brit. Mus. IV, 920.

1855—*Romosa* WALKER, Cat. Brit. Mus. V, 1114.

1855—*Camila* WALKER, Cat. Brit. Mus. V, 1126.

Type *murina* Walk. The type species is before me. Also *P. villosipes* Walk. (*Trabala villosipes* Walk.), *sericea* Möschl. (*Asbolia seri-*

cea Möschl.), *cicur* Sch., *druceoides* Dogn., *brumalis* Sch. and *rubens* Sch., all before me. I am indebted to Sir G. F. Hampson for the structural characters of the genera referred to the synonymy.

Genus **Paleophobetron**, nov.

Male antennæ bipectinated to the tip; palpi porrect, just reaching the front; fore wings with costa straight, veins 2 and 3 stalked, 11 straight, fork of discal vein broadly open without cross-vein; hind wings triangular, veins 6 and 7 stalked, 8 anastomosing at base; hind tibiæ with small terminal spurs.

Type *arcuata* Druce (Biol. Cent.-Am. Lep. Het., II, 444, pl. 88, fig. 9).

This differs from *Perola* in lacking the middle spurs of hind tibiæ and in wing shape.

C. Male antennæ simple.

a. Veins 6 and 7 of hind wings from a point or stalked.

Genus **Pseudovipsania**, nov.

Male antennæ simple; palpi porrect, three times as long as the head, third joint distinct, quadrate; fore wings with costa straight, veins 2 and 3 separate, 7 to 9 stalked, 11 very slightly curved toward 12 at base, fork of discal vein short and open; hind wing with veins 6 and 7 stalked, 8 anastomosing at base; hind tibiæ with terminal spurs, the legs weaker than the middle pair which are apparently abnormally strengthened.

Type *frigida* Schaus (Proc. Zool. Soc. Lond., 1892, 323).

Genus **Prolimacodes** Schaus.

1896—*Prolimacodes* SCHAUS, Journ. N. Y. Ent. Soc. IV, 56.

Type *triangulifera* Schaus. Mr. Schaus has given me a specimen of the typical species. The structure is as in the North American *scapha*, except that vein 10 of fore wings is from cell and 6 and 7 of hind wings from a point. It is a form a little more generalized than our species, but, I think, not generically distinct therefrom.

Family PTILODONTIDÆ.

Trabala truncata Schaus.

Belongs to this family (Melalophidæ). In the synoptic table it falls with *Harpyia*, but the tongue is imperceptible and the wings are shorter and more triangular. The palpi are scarcely curved, and exceed the front by half their length; third joint small. I do not yet know enough of the South American Ptilodontid genera to place this form.